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COMMUNICATIONS

ON PSEUDOGLAUCOMA

BY

DR. ADALBERT FUCHS

VIENNA

I. Introduction

IN a previous paper[1] I dealt with some anomalies of the optic disc, which by an inexperienced examiner might be mistaken for a glaucomatous excavation. I mentioned in this respect an unusually oblique insertion of the optic nerve, which may be present even in cases of slight myopia and may simulate a glaucomatous cupping by the apparent bending of the vessels at the margin of the papilla (Fig. 9). I also mentioned an unusually large physiological cupping (Fig. 3) of congenital origin, the pale colour of the floor of the papilla making it still more like a glaucomatous excavation. Another anomaly is the branching of the central vessels behind the lamina cribrosa so that the individual branches emerge only at the margin of the papilla (Fig. 10). Finally, a glaucomatous cupping may be simulated by a congenital coloboma of the optic disc, if a circumscribed depression of its surface has produced a pit-like cupping. The congenital pits occupy, as a rule, the sclera adjacent to the lower margin of the papilla. Exceptionally they are seated within the papilla itself, mostly directly downwards or downwards and nasally or temporally. Such pits may be fairly deep so that their floor appears dark because it is not illuminated by the

ophthalmoscope, and may be mistaken for pigmentation. In most of the cases of coloboma, however, the depression of the optic nerve head extends beyond the limits of the papilla.

As a very rare occurrence a congenital pit in the optic disc may coexist with a glaucomatous excavation as in the following case, which I examined in the first Vienna Eye Clinic.

Case 1.—A woman, aged 64 years, discovered by chance, ten years ago, the poor vision of her right eye. An oculist whom she consulted eight weeks ago for a slight inflammation of her eye diagnosed glaucoma. The patient had never noticed blurred or iridescent vision.

Each eye shows no injection, nor precipitates on the cornea, with shallow anterior chamber, normal iris and pupil. The papilla of the right eye is grey with a tinge of red and with a complete excavation up to 4D. In the nasal half of the floor of the cupping there exists in the tissue of the optic nerve head a sharply defined pit in the floor of which one sees a short length of a vessel, without any visible connection with other vessels. At the nasal side the margin of the excavation is overlapping with a sharp bend of the vessels. Apart from reduced size of the retinal vessels the fundus is normal. In the lens some radiating opacities are visible.

Vision 6/18, with -2D. cyl. 160° V. 6/12? with +4D. sph. Jäger No. 2. The upper half of the field of vision is gone.

Tension (Schiötz) 22 mm. Hg, the same after homatropine and after adaptation to darkness.

Left eye normal.

In spite of the low tension I had no doubt, that I had to deal with glaucoma simplex, because of the total excavation. On account of the low tension a decompression operation was not required, but, as there existed also an incipient cataract, an iridectomy was performed to prevent later increase of tension and to be preliminary to the operation of cataract extraction.

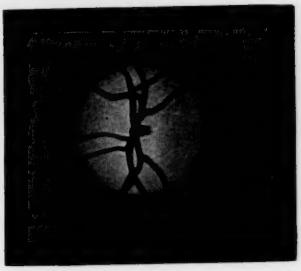
The pit within the excavated papilla admits of a twofold interpretation. It may be a deeper part of the general glaucomatous excavation ("double excavation" Schmidt-Rimpler) a less resistant part of the lamina cribrosa yielding to the intra-ocular tension more than the rest, so that this place becomes the seat of a particularly deep, pit-like depression. This occurs only in glaucoma of long standing and with high hypertony, the pit occupying as a rule the vicinity of the entrance of the retinal vessels. In the present case the tension was found to be low and had probably never been higher, so that hypertony could not be the cause of this groove.

On the other hand there may be a simple coincidence of glaucoma and congenital pit; accounts of congenital pits in the papilla were

CASE 1.

CASE 3.

CASE 2. RIGHT EYE.



CASE 2. LEFT EYE.

published repeatedly, especially in 1908 and 1909, while later the publications have become scarcer, probably because this anomaly was considered to be sufficiently known. The presence of a vessel in the floor of the pit in my case is in accordance with similar findings in congenital pits and pleads in favour of its congenital origin. The reduction of the field of vision was due to the glaucoma which supervened later in life and caused the total excavation.

II. Colobomatous excavation simulating glaucoma

The two following cases simulated glaucoma so closely that they were mistaken for such by some experienced oculists.

Case 2.—The patient, a woman, aged 43 years, had noticed repeatedly three months ago the appearance of a "black wheel" before the eyes, which always disappeared after a few minutes. This symptom did not recur. No blurred nor iridescent vision. The patient consulted an oculist in the province who urgently advised an operation.

The right eye looks normal externally with an anterior chamber of medium size as in the other eye. The optic disc is deeply excavated, with a sharp bend of the retinal vessels at its margin. The floor of the excavation is yellowish-white and covered by a semi-opaque tissue so that the vessels are not defined sharply enough to determine their refraction; but that the cupping is deep is shown by the strong parallactic displacement. The papilla is somewhat larger than in the other eye and is encircled by a narrow white halo; at its temporal side lie a few irregular patches of pigment.

Vision 6/30, with +2D. sph. Jäger No. 7.

The visual field examined with Bjerrum's screen exhibits an increased size of the blind spot, which is a horizontal ellipse with a horizontal extension from 4° to 25° (Fig. 1).

The left eye is normal. Vision 6/4 with +2D. sph. 6/4.

Tension, right eye: 20 mm.; left eye 18 mm. (Schiötz).

In the present case the history, the reduced vision, and the aspect of the optic disc pleaded for glaucoma which in fact had been diagnosed by an oculist. Considering the low tension the glaucoma ought to have been a simple one. But the fact that the right papilla was larger than the left proves the case to be not glaucoma but a congenital colobomatous excavation.* My father, to whom I showed the case, confirmed my diagnosis. A year later the picture was the same.

*In anatomical specimens of old glaucoma the scleral canal is found somewhat dilated, but this holds good only of cases of very long standing.

The diagnosis of a congenital malformation of the optic disc is in accordance with the enlargement of the blind spot, which with regard to its unusual size as well as to its extension along the horizontal meridian does not correspond with the findings in cases of glaucoma. The vessels at the floor of the excavation were seen but indistinctly, because they were covered by a layer of

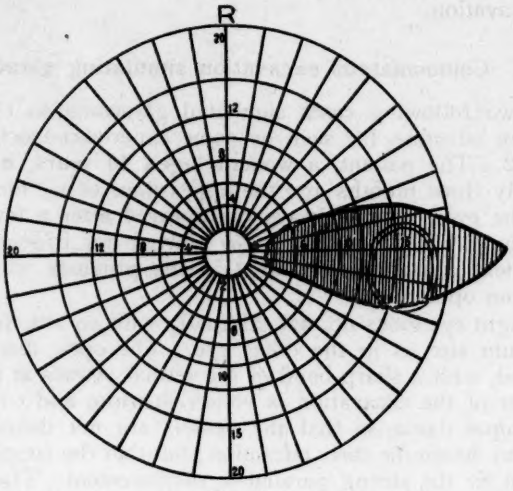


FIG. 1.

neuroglia, as has been recorded also in other cases of coloboma of the optic disc.

Similar to this case is

Case 3.—A girl, aged 12½ years, who came to consult me for conjunctivitis and for spectacles; said to have seen worse always with her right eye.

The papilla of the right eye is deeply excavated, with some of the vessels passing the margin of the papilla with a sharp bend, some disappearing there behind the scleral ring. The floor of the papilla is whitish and blurred, but the vessels are sufficiently distinct to determine their refraction, which is -8D. at the floor of the cupping. The papilla is surrounded by a sort of halo of about one-third of the diameter of the papilla. The halo stands out against the adjacent fundus by its lighter and more mottled colour; its peripheral limit is irregular with some pigmented spots. The halo exhibits a slight declivity, having a refraction of 1D. to 1.5D. higher than the adjacent fundus.

Vision with -1.5D. sph. 5/18, Jäger No. 1.

Tension normal; corneal astigmatism 0.5D. cyl., according to the rule. Field of vision normal. It was not possible to trace the blind spot.

In the left eye the papilla is normal and very slightly smaller than in the right.

A sister of the patient has in the right eye a conus inferior with markedly less pigmentation of the lower part of the fundus. The mother has normal eyes.

In the present case the papilla simulated a glaucoma by the deep boiler-like cupping, the white colour, and the bending of the vessels at the margin. On the other hand the age of the patient, the normal tension, and the absence of other symptoms of glaucoma pleaded against this diagnosis. It was no doubt a case of congenital colobomatous excavation; although there was no enlargement of the papilla as in the preceding case, the congenital anomaly manifested itself here by the depressed level of the halo, as shown by its higher refraction. Also the irregular pigment spots at the margin of the halo would be very unusual in a case of glaucomatous halo.

Similar cases of pseudo-glaucomatous cupping are on record, the earliest being that of Stood[2]. In this case the excavation was not complete, some nervous tissue persisting on the nasal half of the disc, wherefore Stood did not insist on the simulation of glaucoma. Szily, sen.[3] gives the diagram of the papilla of a case in which an operation was advised for glaucoma, but during four years of observation the findings did not change. The anomaly was the same in both eyes and proved to be congenital by the fact that the entrance of the central vessels and their branching at the floor of the papilla were invisible.

Rönne[4] recently published a similar case, without increased tension, and observed for four years.

Nowadays the differentiation of congenital anomalies from glaucomatous excavation is easy, if in the fellow eye exact examination of the blind spot be possible. Notwithstanding, there will always be cases in which the diagnosis will at first remain doubtful, and to be made only after prolonged observation.

The ophthalmoscopic distinction between colobomatous and glaucomatous excavation is easy, if the fellow eye also presents congenital malformations, as have occurred in most of the reported cases. Very defective vision is also in favour of a congenital anomaly if it had been noticed by the patient for a very long time, especially since childhood.

The exact diagnosis is more difficult in some rare cases, as in mine, if the malformation is limited to only one eye, the fellow eye being normal. If then, as in my Case 2, the excavated papilla

is larger than that of the other eye, glaucoma may be excluded, since in this condition both papillae are of the same size.*

Another distinctive feature is the veiling of the vessels at the floor of the excavation, which I do not remember to have seen in glaucoma cases in which it is nearly always possible to focus exactly the vessels and determine their refraction. This veiling of the vessels has been recorded in several of the published cases and is probably due to the filling of the cup with semi-transparent neuroglia, compare the case of Roemer (left amaurotic eye), and of Zade.[5]

Decisive for the diagnosis may also be the aspect of the halo, present in my cases as well as in some of those recorded in the literature. In contradistinction to the glaucomatous the colobomatous halo is irregular and often pigmented. On the other hand the glaucomatous halo which, as a rule, is present only in very advanced cases of glaucoma, is narrower, whitish, and more uniform. The colour of the excavation is not decisive; it may be more red or on the contrary quite white, resembling in the latter case the colour of the glaucomatous cupping, but there are exceptional cases of incipient glaucoma, with a marked red colour of the papilla; in these cases, however, the cupping would be insignificant.

III. Angiectasia of the eyeball

The above recorded cases simulated glaucoma simplex; whilst the *angiectasia* of the eyeball resembles inflammatory glaucoma. Such cases are very rare, and, therefore, I beg to relate one observed by me.

A boy, aged 14 years, from Cairo, had his eyes injected for five years, and he thought that his vision was decreasing. After reading for some length of time the characters began to dance. He consulted a well-known French oculist, who was passing through Cairo, and who advised an operation on both eyes for glaucoma.

The boy does not open his eyes to the normal extent. The conjunctiva of the lids and the transitional fold is redder, exhibiting between the large vessels very numerous small ones with minute varicosities in places. Besides there are, as a sequela of old

*There exist eyes with papillae of unequal size. Such was a case published by Cords *(Klin. Monatsbl. f. Augenheilk.*, T. LXXI, p. 414, 1922) where one papilla of a girl, aged 11 years, was 65 per cent. smaller than the other. The smaller disc was the malformed one and was of a whitish colour on the temporal side. The vessels appeared here on the lower edge.

I had once the opportunity to observe a case where one papilla was markedly larger than the other. The vision and the refraction were normal in each eye. The smaller disc was apparently the normal one, while the other was larger than normal.

trachoma, very delicate cicatrices in the conjunctiva, both of the lids and of the transitional folds.

On the eyeball one sees very numerous vessels of unusual breadth and tortuosity, running from the limbus backwards. The dark colour of these vessels shows them to be veins.

In both eyes the cornea is bright, the anterior chamber deep, the pupils of medium size, and the iris blue—quite unusual in an Egyptian. The refracting media are transparent, the optic discs are unusually red with a conus inferior in each eye. The discs are sharply defined without an excavation. In the temporal half of the papilla of the left eye a minute macular vessel begins with numerous, very marked corkscrew-like windings, continuing a more rectilinear course in the fundus. The fundus of each eye is but poorly pigmented and everywhere the choroidal vessels, without any appreciable changes, are visible.

Vision R.E. 5/6 H.M. 1D. sph.; corneal astigmatism (ophthalmometer) 0.75D. cyl., according to the rule.

L.E. 5/18 with +2D. sph. +2D. cyl. 5/8? corneal astigmatism, 1.5D. cyl., according to the rule. Tension normal.

The boy's skin is poorly pigmented; he has brown hair and blue eyes like his father. In the fossa naso-labialis there are fine venous ectasias, whilst there is no change visible in the vessels in the region of the mouth and pharynx.

This case presents a particular condition of the vascular system of the eyeball, *viz.*, a very marked ectasia and tortuosity of the anterior ciliary and the conjunctival vessels, similar to that seen in an eye, which has just had an attack of acute glaucoma, with the difference, however, that other symptoms are absent. During the next months I saw the boy repeatedly and always found the ocular tension low.

In a minor degree an analogous change existed also in the vascular system of the retina, a macular vessel being enlarged and tortuous within the papilla. On the other hand the posterior ciliary arteries were probably normal, as there were no changes visible in the choroidal vessels.

My father, to whom I showed the case, confirmed the diagnosis of vascular change in contradistinction to glaucoma. He remembered to have observed a similar case for many years. It was a woman, aged 43 years, who consulted him for the first time on January 5, 1887. Her right eye had divergent squint since infancy, with high myopia, circumpapillary atrophy of the choroid and central choroiditis. She counted fingers at 50 cm. and read Snellen 1 at a very short distance.

In the left eye the cornea and anterior chamber were normal the reaction of the pupil good, and tension normal. The optic disc, as expressly noted, was not cupped.

Vision 5/9, with −0.75D. sph. 5/6. Snellen 0.5.

In both eyes the anterior part was of a light violet colour because the anterior ciliary vessels, probably arteries as well as veins, were greatly dilated, as in a case of chronic glaucoma of long standing ("annulus arthriticus") so that in spite of the normal tension and absence of excavation a glaucoma was thought to be imminent and the use of pilocarpine was advised.

One year later the condition of the eyes was unchanged. It came out that the patient had had for seventeen years some enlarged glands in the neck, which increased in size every winter and diminished during summer. After prolonged use of iodine the glands had somewhat decreased in size. In May, 1887, two glands, a small and a larger one, were discovered at the anterior margin of the sterno-mastoid muscle.

The patient was seen at intervals during the following twenty years. At her last visit, 1907, the congestion of the vessels was just as striking as when seen for the first time. In the meantime the patient had developed cortical opacities of the lenses, so that the fundi could no more be seen satisfactorily, but there existed no symptoms of glaucoma whatever.

This case is analogous to mine, except for the age of the patient, being aged 14 years in my case and aged 43 years in my father's case in which the beginning of the vascular trouble had not been recorded. At any rate, this particular instance shows that this trouble may persist unchanged for many years.

In the literature I found but two similar cases, recorded in 1880, in a paper by Leber[6].

Case 3 (Leber).—The patient, a man, aged 35 years, stated he had noticed the dilatation of the vessels for six years. Besides opacities of the lens and of the vitreous body there existed enormously dilated "conjunctival veins," suggestive of the dilatation of the veins in the last stage of glaucoma or in an intra-ocular tumour. The capillary loops in the limbus were normal, but the ciliary veins were enormously dilated. Some of these were seen running as far as the transitional fold, whilst the majority disappeared in the recti muscles. The papilla appeared normal to Leber, whilst the oculist of New York, who had treated the patient previously had found the papilla covered by a dense network of fine vessels.

Case 4 (Leber).—Another patient from America, aged 19 years, had developed during the last years a circumscribed hyperaemia on the temporal side of the cornea, which two years later had become worse. In the temporal half of the conjunctiva the veins were greatly dilated and could be followed up to the transitional fold. In contradistinction to congestion associated with inflammation, as for instance scleritis, the dilatation concerned

mainly the large vessels, the capillary network being nearly normal.

In the above four cases the vessels of the anterior part of the eyeball were so highly dilated that the eyes presented the aspect of inflammatory glaucoma. In fact in my case this diagnosis had been made by a distinguished oculist, and my father suspected glaucoma for a while in his case. Leber published his cases on account of their unusual aspect and because, as he specially noted, of their resemblance to glaucoma.

In three of the cases the patients stated that the vascular trouble existed only for some years, so that it was not a congenital condition. The colour of the dilated vessels is bluish red, and I think, that in my case at least not only the veins, but also the arteries participated in the dilatation.

Leber held that the dilatation of the vessels was due to a chronic inflammation of the ciliary body, which had also caused the vitreous opacities in his first case. He furthermore admitted as an unusual fact, that the cyclitis must have come to a standstill, whilst the external dilatation of the vessels persisted, wherefore he supposed that there had been an independent alteration of the vessels.

I also believe that the vascular trouble in the above cases was independent of any intra-ocular inflammation, of which there existed no symptoms whatever in my own case and also in my father's, no such symptoms occurred during twenty years of observation. Furthermore, there existed in my case dilated vessels also in the region of the naso-labial fossa which could in no way be brought into relationship with an intra-ocular inflammation.

The condition seems to be a stationary one, as in my father's case it persisted unchanged for twenty years.

The clinical picture of the above cases is very rare and is important to recognize because of its resemblance to inflammatory glaucoma, and the possibility of an error of diagnosis, which, however, can be easily avoided by the use of the tonometer.

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3. **Szily, Adolf.**—Monografie des Sehnervenkopfes in mensclichen Auges. *Bergmann*, Tafel 4, 1901.
4. **Rönne** —*Arch. f. Ophthal.*, Vol. CV, p. 465.
5. **Zade.**—*Klin. Monatsbl. f. Augenheilk.*, Vol. XLV, Pt. ii, p. 435.
6. **Leber.**—*Arch. f. Ophthal.*, Vol. XXVI, Pt. ii, 1880.

A PECULIAR CASE OF GLAUCOMA

BY

E. E. HENDERSON AND R. R. JAMES

LONDON

DR. A. FUCHS'S remarks on angiectasia, published in this number, induce us briefly to record the notes of a peculiar type of chronic glaucoma which has been under our care since 1910.

Mr. L. C., aged 48 years, consulted one of us (E.E.H.) in June, 1910. His vision was as follows:

R. 6/24 + 2.0 D. cyl. $_{90°}$ = 6/6.
L. 6/36 + 1.75D. cyl. $_{90°}$ = 6/6.

The episcleral veins, especially in the left eye showed marked dilatation; the pupils were equal and active, the tension was normal, possibly fuller in the left eye than in the right; no scotoma was present, nor was there any enlargement of the blind-spot; physiological cups were noted, there was no pulsation of the vessels in the fundus, and the fields for white were full. Glasses were ordered for work. He was kept under observation, being seen in November, 1910; June, 1913; and April, 1918; on each of these occasions no change was found in his condition.

In September, 1923, he was seen for the first time by R.R.J. He was then aged 59 years. His vision, with glasses, was: R. 6/9; L. 6/6 part, and J.1. with difficulty in each eye with his correction. The following result was obtained:

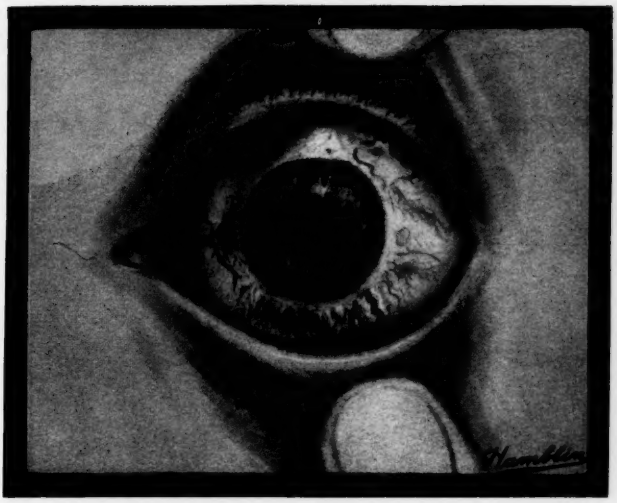
R. + 0.5 D. sph. + 2.75D. cyl. $_{85°}$ = 6/6
L. + 0.25D. sph. + 2.0 D. cyl. $_{90°}$ = 6/6 } + 2.5D. sph. added = J.1.

A note was made that the media were clear and that the physiological cup in the left eye was larger than that in the right. So far as can be remembered the fields were not taken at this visit.

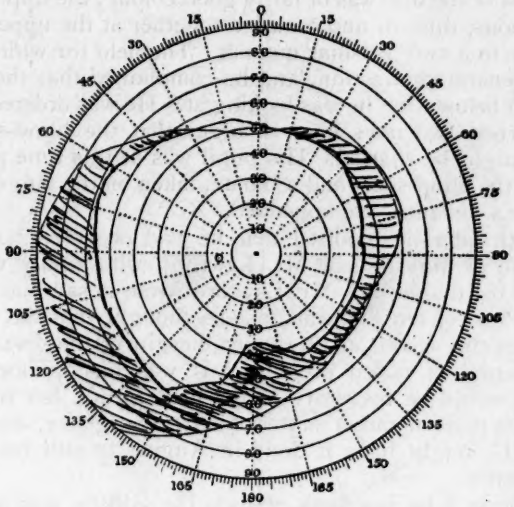
On April 7, 1925, he returned with the complaint that he felt that his right eye was doing all the work; he had been aware of this difference for the past six months. He had had no pain, no halos had been observed, but he said that he had had a severe shock in the previous August, by the sudden death of his only son. The left eye was congested, the pupils were equal and active, the tension of the left was certainly full. His vision was as follows:

R. $\bar{c}$. glass = 6/5 and J.1.
L. $\bar{c}$. glass = 6/5 and J.1.

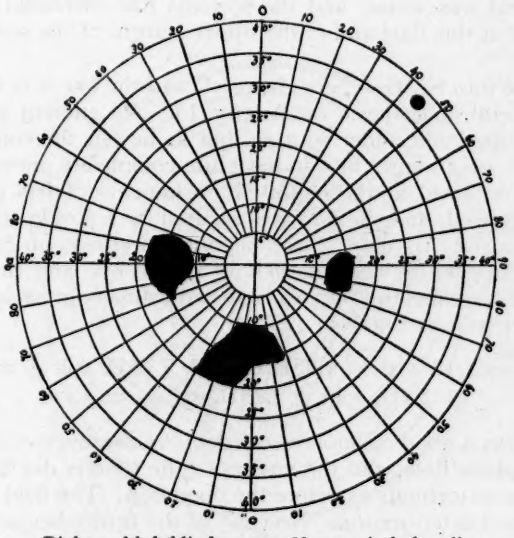
The cup in the left disc was now pathological, reaching to the edge of the disc in the upper part, the cup itself was very white,



Left eye. Cupped disc showing dilated tortuous vessels after operation.



Left eye. Field for white. April 9, 1925.



Right and left blind spots. 20 mm. circle for all.
Scotoma below fixation point belongs to left eye.

but the rest of the disc was of fairly good colour; the upper vessels were tortuous, dilated, and crowded together at the upper margin of the disc in a very peculiar manner. The field for white showed a slight general contraction, and he complained that there was a dark patch below what he was looking at. He was ordered eserine, and returned two days later in order that the blind-spot and scotoma might be charted. His pupil was at this time pin-point. Copies of the blind-spots and scotoma, taken on the tangent screen at a metre's distance, are appended.

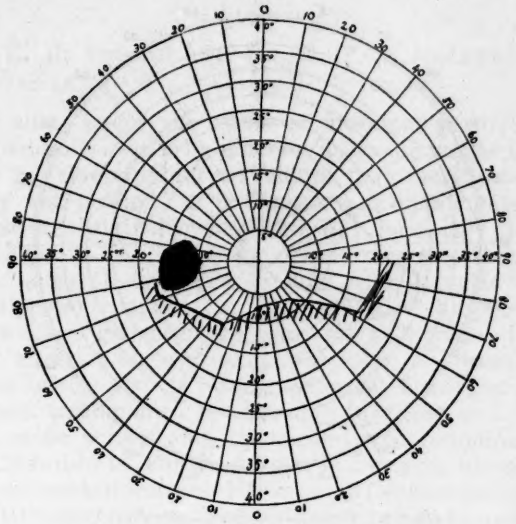
A month later he reported that he had observed no change. At the end of May he saw Mr. Lawford, who kindly wrote and confirmed the diagnosis. Mr. Lawford wrote to say that he found a distinct rise of tension, and that he thought that the crowding together of the vessels at the upper margin of the disc indicated a long period of raised pressure. It was his opinion that an operation would be necessary in the near future, but he did not consider its performance a matter of extreme urgency, and thought that Mr. C. might have it done in August to suit his business arrangements.

On August 8 he saw both of us. He said he was not happy about his left eye; he had noticed nothing definite, no halo, and only an occasional ache, but he was not happy. The tension was full, the pupil small, the appearance of the fundus unchanged, but the field was worse, and the scotoma had increased. Charts of the field at this date and of the upper margin of the scotoma are appended.

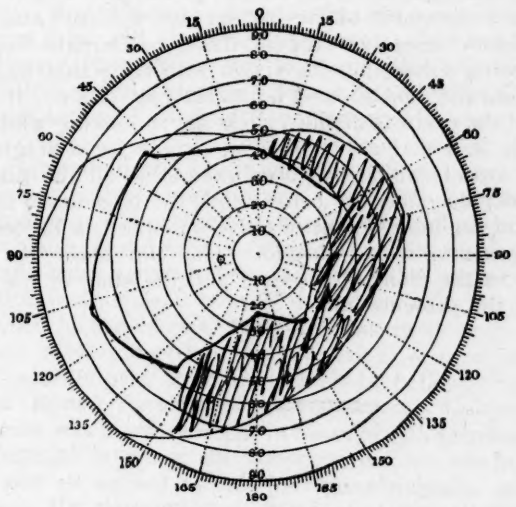
He came into St. George's Hospital, and the eye was trephined under general anaesthesia on August 15. An attempt was made to do the operation under cocaine, but as he felt the conjunctival incision, it was thought best to have him completely anaesthetized. No hitch occurred at the operation, a knuckle of iris protruded and was excised, and the flap was secured by a single stitch. He left hospital on August 27, and reported progress on September 22. He complained of some aching of the eye and the tension at first touch seemed full, but was reduced by massage satisfactorily. His vision was as follows:

L.V. $\bar{c}$. glass 6/18 with $-$ 1.25D. sph. $+$ 2.75D. cyl. $_{90°}$ = 6/5 with $+$ 1.5D. sph. $+$ 2.75D. cyl. $_{90°}$ = J.1.

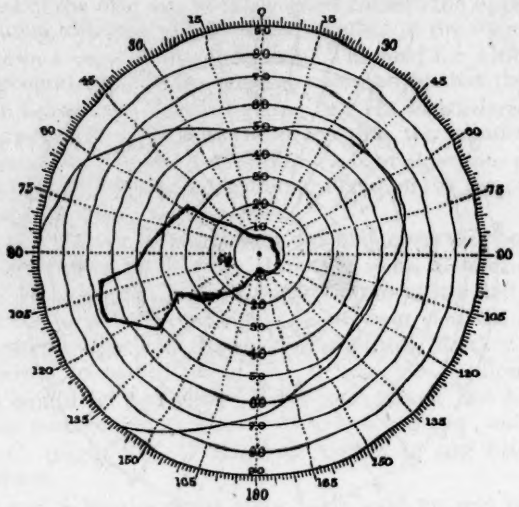
There was a good cushion of oedematous conjunctiva at the site of the trephine hole, and the vessels in the fundus did not appear to be quite so tortuous as before the operation. The field showed a very marked deterioration. No copy of the field taken at this date has been preserved but a chart of that taken later in the year is appended to show the difference.



Left eye. Showing blind spot and upper margin of paracentral scotoma. August 8, 1925.



Left eye. Field for white. August 8, 1925.



Left eye. Field for white. December, 1925.

In view of the full tension he was advised to use eserine once daily; this he did and the eye kept *in statu quo*; by August, 1926, he had shown signs of irritation and pilocarpine was substituted. At this date the vision of the left eye was 6/5 part and J.1.; the field as before. Seen in August, 1927, he thought his eye was slowly getting worse, but his vision with correction was still 6/6 and J.1. and the field showed no marked alteration. It might be added that the eye was distinctly less angry looking while he used the miotic and that the right eye, except for a single dilated episcleral vessel, which has been noticeable all the time, shows no sign of glaucoma; the field is full, the tension, to the finger, normal and no enlargement of the blind-spot can be detected.

The illustrations by Theodore Hamblin show the vascular dilatation in the front of the eye, and the state of the disc and vessels at the present time.

TWO CASES OF PARINAUD'S CONJUNCTIVITIS

BY

DR. C. D. VERRYP AND DR. K. T. A. HALBERTSMA

LEIDEN DELFT

THE fact that, under the name of Parinaud's conjunctivitis, various conditions caused by different micro-organisms have been described by several observers shows that the disease is not sufficiently well defined. It is necessary to differentiate between the disease as originally described by Parinaud[1] and other similar conditions. In the original syndrome the three cardinal symptoms were: (1) unilateral swelling with granular formation of the palpebral conjunctiva; (2) swelling of the praeauricular and submaxillary glands of the same side; (3) fever. Pascheff[2] described a series of cases under the name of "conjunctivitis necroticans infectiosus" in which unilateral disease of the conjunctiva was accompanied by glandular swelling and fever but in which, as he pointed out, the conjunctival condition differed from that described by Parinaud since, in his cases, ulceration and necrosis were marked features. He isolated a Gram-negative bacillus which he termed the micro-bacillus polymorphus necroticans.

Guinea-pigs inoculated with this bacillus died within a few days with enlarged spleens containing necrotic areas similar to those observed in the human eyelid. Pascheff points out that the organism responsible for Parinaud's disease is not pathogenic for guinea-pigs. For this reason he considers his cases as belonging to a different type and also rejects the cases described by Bayer and von Herrenschwand[3] as due to the bacillus pseudo-tuberculosis rodentium (also pathogenic for guinea-pigs in 6-12 days) on the same account. Rolandi[4], reviewing 111 cases from the literature, concludes that Parinaud's disease is not a distinct entity but rather a clinical syndrome; the classical form a special form of conjunctival tuberculosis. Morax[5] considers that Parinaud's disease has nothing to do with tuberculosis since there is no resemblance in the clinical symptoms nor in the pathological anatomy, and more particularly on account of the negative results of inoculation in animals. Verhoeff[6] has observed a large number of cases which he considers to be typical instances of the disease. In all of his cases but one he found, using a modified Gram staining, filaments of a leptothrix which he believes to be the cause, and named the disease "Leptothricosis Conjunctivae." The leptothrix was chiefly present in areas of cell-necrosis situated in the superficial layers of the conjunctiva. No ulceration was observed, and all animal inoculations gave negative results.

Our cases, the description of which follows, clinically and histologically mostly resembled those published by Verhoeff.

Bacteriological examination failed to show any causative micro-organism.

Case 1 (Figs. 1 and 2). This case was shown at the Dutch Ophthalmological Society[7]. The patient was a boy, aged 16 years, of Austrian nationality who was first seen at the Leiden University in September, 1925. He had suffered for a fortnight from redness of the right eye and swelling of the right cheek. He was otherwise in good health. He had previously had mumps, mainly on the right side. On examination the lower eyelid on the right side was swollen and the ocular conjunctiva injected. The lower fornix was covered by reddish semi-transparent granulations with an uneven surface. Some defects of this surface were stainable but there was no definite ulceration. Some mucous secretion was present. The upper eyelid showed no pathological change and the cornea was normal. The iris, lens, and fundus were all healthy. The visual acuity of both eyes was 10/10. The left eye was normal in every respect. The right parotid gland was swollen. Under the ear the tumour was rather firm and not very painful. Under the lower jaw the swelling was more dough-like and more tender to palpation. There was no fluctuation. The submaxillary gland was also swollen, and the body temperature was raised to about 39° C. The liver was enlarged, as tested by percussion, but not palpable. The spleen was distinctly palpable and protruded about two inches below the costal margin. The blood-reaction as regards syphilis was negative. The haemoglobin index (Sahli), as also the erythrocyte and leucocyte counts were normal. The increase of the eosinophile cells observed by Weaver, Rolandi, and Sanford Gifford[8] was not found in our patient. There was, however, as noted by Pascheff in his cases of necrosing conjunctivitis, a decrease of polynuclear leucocytes (30 to 40 per cent.), associated with the presence of numerous lymphocytes (45 per cent.). The blood condition remained unaltered for some weeks. The conjunctival secretion contained only the staphylococcus albus. Some of the granulation tissue was excised and submitted to bacteriological and histological examination.

Bacteriological examination.—Cultures on Sabouraud plates remained sterile, thus excluding any sporotrichosis. Inoculations in guinea-pigs, both subcutaneous and intraperitoneal, and also subconjunctival in rabbits and monkeys, were made with an emulsion of the tissue. No reaction was observed in any of the animals even after several months. In the course of the disease a small praeauricular gland broke down and the purulent matter was investigated in the same way and with the same negative result. Cultures from the pus on agar and broth remained sterile. Ziehl-Neelsen staining was negative; no Much granules were present.

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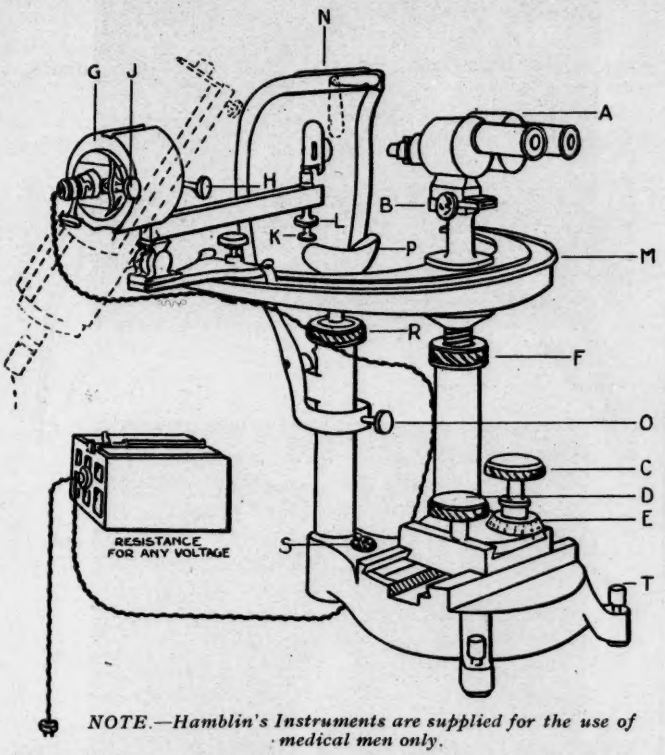

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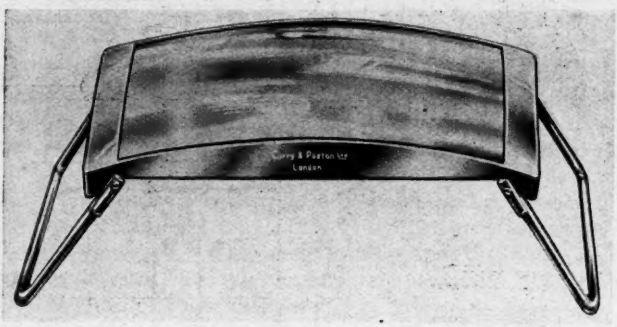

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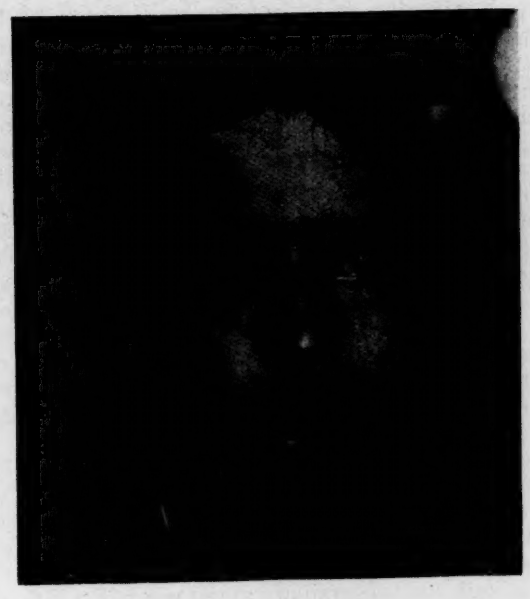

FIG. 1.

FIG. 2.

Histological examination.—The conjunctival epithelium was not much altered with the exception of defective staining of the nuclei. Immediately beneath the epithelium there was a layer containing many fibroblasts and small blood and lymph vessels filled with lymphocytes. In the deeper layers infiltrations of lymphocytes, and polynuclear leucocytes were observed. These layers also contained some plasma cells. These cellular collections were mostly diffuse but were in some places grouped in greater density. The appearances agreed with the description of Morax, and correspond with the atypical proliferative inflammation characteristic of infectious granulomata. There were also present areas of cell-necrosis of the type described by Verhoeff. Examination by the modified Gram method described by that author revealed no leptothrix. Ziehl-Neelsen staining also gave a negative result. Old tuberculin (Koch) was injected after the patient's temperature had fallen to normal, but produced no reaction either general or local.

The subsequent course of the disease was as follows: the temperature after remaining elevated for a few days fell to normal at the end of a week. The conjunctival and glandular condition improved together. At the end of a month the conjunctiva was still somewhat swollen and red, the parotid was no longer palpable though the submaxillary gland was still a little enlarged. The blood condition was unaltered, and the spleen was still enlarged. Five months later the submaxillary gland was still palpable, and the spleen a little enlarged; the latter had rather a firm consistence.

Case 2. Miss X—., aged 23 years, has had the right eye inflamed for a fortnight. Swelling of the eyelids and redness of the conjunctiva had started suddenly without any known cause. There had been no previous illness or affection of the eye, neither had there been any animal contact. On examination the right upper eyelid was much more swollen than the lower one. The skin of the upper lid was of a bluish tinge, and the ocular conjunctiva was slightly injected. The inner side of the lower lid was redder than usual but showed no other change. The tarsal conjunctiva of the upper lid was covered by a granular mass with a smooth surface without any visible ulceration. The granulations were transparent and of a yellowish colour, and extended from the margin of the lid to the superior fornix. They were arranged parallel to the fornix and were covered by a superficial vascular network. The amount of conjunctival secretion was moderate and contained no typical micro-organisms. The visual acuity of both eyes was 10/10 without glasses and the fundi were normal. The right praeauricular and submaxillary glands were enlarged and the former was tender on pressure. The right side

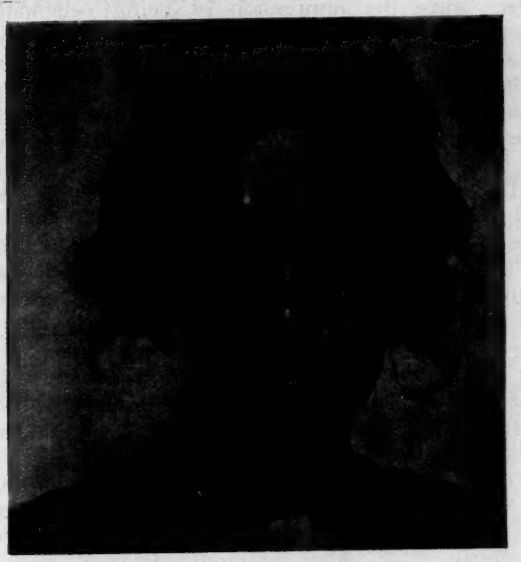

FIG. 3.

FIG. 4.

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of the face gave the impression of being oedematous. The temperature was 38.3° C. The blood Wassermann reaction was negative and the urine was normal. The blood pressure was raised (max. 170, min. 85) and the spleen was enlarged to palpation. The haemoglobin index (Sahli) was 66, the number of leucocytes 9,400; the number and shape of the rest of the blood corpuscles was normal. Leucocytes, 78 per cent. polynuclear, 8 per cent. mononuclear, 14 per cent. lymphocytes. The leucocytes occasionally contained some toxic granules.

A piece of the granulation tissue was excised and investigated at the Pathological Institute of the Leiden University. The epithelium showed no change. In the superficial layers there were many necrotic areas surrounded by numerous lymphocytes and plasma cells. In the deeper layers there was much granulation tissue. No micro-organisms were found in the sections and Verhoeff's staining method revealed no leptothrices. Inoculations of the granulation tissue in the groin and peritoneum of the guinea-pig produced no reaction after five months.

Iodoform ointment (5 per cent.) was applied to the eye daily for a few weeks. The swelling of the upper lid and of the glands decreased slowly, and the fever, which at the beginning was fairly constant, disappeared. After two months from the start the aspect of the eye was normal again and the excised parts of conjunctiva had quickly healed.

Summary.—The cases here described show clinically the same aspect: relatively acute onset of the disease; involvement of the homolateral glands synchronous with the changes in the eye; elevation of temperature; enlargement of spleen; and similar appearance of the conjunctiva. The only difference was in the blood condition. The glandular swelling persisted for a considerably longer period than the changes in the eye. The histological examination in both cases gave results closely resembling those found by Morax and Verhoeff. The bacteriological examination failed to show any causative micro-organism. It is certainly very improbable that the tubercle bacillus should be responsible for the disease. We consider that both patients suffered from the typical conjunctivitis of Parinaud.

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THE AFTER RESULTS OF CATARACT EXTRACTION

BY

R. C. DAVENPORT

MOORFIELDS RESEARCH SCHOLAR

IN Vol. XIV of the *Ophthalmic Hospital Reports* Devereux Marshall published an analysis of the results of all the cataract extraction operations performed at Moorfields in the five years, 1889-1893 inclusive. I have collected and analyzed those done in the seven years, 1919-1925 inclusive, with a view to seeing how the results compare, more especially as regards the more frequently used extraction operations without complete iridectomy. The total number Marshall collected was 1,519; I have found the total in the seven years I have gone into to be 2,368. This number comprises all I can find where extraction was performed for a cataract other than traumatic, with the exclusion of those in which extraction was performed, or attempted, by Barraquer's method, the results of which have already been published[1].

The numbers in each year are as follow:

1919	383	
1920	435	
1921	352	
1922	272	Barraquer's method used during these years.
1923	284	
1924	300	
1925	342	
Average	388	

Of the total there were:

Extractions with Preliminary Iridectomy	99
„ „ Complete „	829
„ „ Peripheral „	885
'Simple' Extractions	555

Thus, of the total nearly 25 per cent. were "simple" extractions, a much higher proportion than in Marshall's series. The extraction with peripheral iridectomy was not then employed but is more and more frequently used now at Moorfields—the figures for the last two years showing a greater usage of this technique than any other, *viz.*, 290 out of a total of 642.

The simple extraction, on the other hand, is less frequently employed than in the earlier years of the series.

The preliminary iridectomy operation is used but little now. In many of the cases previous iridectomy was done for a diseased condition, in others because a morbid state was suspected or

present so that advantage might be gained from the presence of an iridectomy and information gleaned as to the reaction of the eye to operation. I have not found it possible to separate the various conditions clearly so have decided to class together all the cases in which iridectomy was performed—for whatever cause—as a separate operation prior to the actual lens extraction.

The sex of the patients was as follows: Males 46.1 per cent., Females 53.9 per cent.

The Ages:

Under 40	33
From 40–50	124
„ 50–60	443
„ 60–70	872
„ 70–80	580
Over 80	61

In 25 cases I have not been able to find the age of the patient.

I have been able to get visual and other records in 2,244 cases out of a total number of 2,368. The difference between the two figures is made up as follows:

Died from pneumonia, heart failure, diabetic coma, etc. ...	12
Insane	8
No visual record obtainable	104
	124

There is no doubt that many in the last class had good vision resulting from the operation, but I have thought it best to exclude them from the figures, though Marshall included those cases where it seemed likely that they would fall into a certain category of his analysis.

Results in mass

I have divided the visual results, as a criterion of the measure of success of the operation into five groups:

A	Vision 6/6 part or better
B	„ 6/12 „ „ „
C	„ 6/60 or better
D	„ P.L. „ „
E	Excisions and no. P.L.

This is a rather more critical subdivision than that used by Marshall, but I think as such it brings out certain features. It is, of course, realized that factors other than the state of the eye enter into the visual result obtained, particularly the intelligence

and effort of the patient. But the degree of care employed by the observer in obtaining the most suitable correction for the patient, combined with the degree of insistence shown in eliciting the best subjective result, both make a considerable difference to the figures of a more critical review. The calibre of a surgeon's assistant often plays a part in such records.

The figures are as follow:

A	(6/6 part.+)	610	27.18 %	68.71%
B	(6/12 part.+)	932	41.53 %	
C	(6/60 +)	442	19.70 %	
D	(P.L. +)	210	9.36 %	
E	(Excisions 50) No P.L. 10)		2.5 % of total operations	

If a successful result be taken as that in which at least 6/60 vision is obtained it will be seen that the figure is 88.41 per cent. Marshall, in his series, showed a figure of 89.7 per cent. for this category so that the results are at least not better in the main for recent years.

The results of A. and B. groups (which might be termed very good and good) are 68.71 per cent. Marshall showed 76 per cent. with 6/18 or better. If the cases of 6/18 are added in this series to those in groups A. and B. the figures are 76.1 per cent.—strikingly close to his, although the percentage is greater in the highest groups as compared with his results, which were A. 22.7, and B. 35.4.

Where the vision is not as good as 6/60 the result must be called "poor" at least. I have analyzed the 210 cases in this group D. showing where possible the cause of the poor result.

i.	Old irido-cyclitis, etc.	20	98
ii.	High myopia	15	
iii.	Old glaucoma	7	
iv.	Various macular lesions	33	
v.	Diabetic changes	8	
vi.	Optic atrophy	9	
vii.	Retinitis pigmentosa	3	
viii.	Corneal opacities	3	
ix.	Detachment of retina	18	
x.	Haemorrhage	10	
xi.	Capsular remains not needled ...	11	
xii.	T. + after operation	14	
xiii.	Vitreous loss	25	34
xiv.	Infection	9	
xv.	No definite cause given	25	
		210	

From this it will be seen that in nearly 50 per cent. of the cases a pre-existing lesion can definitely be held responsible for the poor final result of the operation, as regards visual acuity.

Group E., comprising 10 blind eyes and 50 excisions can be analyzed as below:

50 excisions ... 2.1 per cent. of total operations.		
Suppuration	20	1.14%
Large loss of vitreous (infection playing a part probably in loss of eye)	7	1.14%
Chronic infection after extraction	7	
„ „ „ needling	5	
Tension + ...	4	
Expulsive haemorrhage	7	—0.3%

Of the suppurative cases, 6 were known to be diseased eyes prior to operation, 2 being diabetic cases, and 2 glaucoma, 1 high myopia, 1 irido-cyclitis, and 1 nystagmus.

Marshall's figures were:

1.71 % suppurations after extraction
1.02 % „ „ needling

so that the losses from acute infection appear considerably lower in recent years. On the other hand his percentage of excisions was only 1.9.

The 10 cases of total blindness resulted from severe infection, large vitreous loss and detachment of retina, though some of the latter supervened in eyes which had had successful extraction of cataract with subsequent good vision before detachment of the retina appeared.

Visual results subsequent to the various types of operations

In these tables I have excluded the cases where preliminary iridectomy was performed as in these the high proportion of morbid states prior to operation in my opinion makes a comparison of results worthless.

	Totals	A	B	C	D	E
Simple Extractions	524	160	233	89	35	7
With Peripheral Iridectomy ...	846	274	371	149	36	16
With Complete Iridectomy ...	784	171	317	189	81	28

PERCENTAGE TABLE.

	Totals	A	B	C	D	E
Simple Extractions	524	30.53	44.4	17.02	6.70	1.33
		74.93				
With Peripheral Iridectomy ...	846	32.38	43.85	17.61	4.25	1.89
		76.23				
With Complete Iridectomy ...	784	21.8	40.42	23.85	10.33	3.57
		62.22				

It is obvious from these tables that the results in the cases where complete iridectomy is done are appreciably worse than in the other groups. At the same time there is no doubt that iridectomy is often used where any danger is suspected, *e.g.*, in myopic eyes, or eyes that have been subjects of inflammation. The final results would, therefore, be less satisfactory in such cases. These may be sufficient to account for the difference between the figures. But there is reason to think that the figures are evidence for the contention that the intact pupillary rim prevents capsule becoming entangled in the wound and thereby lowers the risk of chronic infection which, though not necessarily a danger to the existence of the eye, lowers its visual acuity by the production of exudation to cloud the transparent media. That such may be the case is further suggested by the fact that the figure for group E for blind or excised eyes is more than twice that in the other types.

The figures for simple extractions and those with peripheral iridectomy so nearly agree that I doubt if any differential criticism has any value, though it is interesting to see that the figure in group E. for simple extractions, is lower than that of either of the others—a fact of some interest in view of the much greater frequency of prolapse of iris in this type of operation.

With this figure excepted the figures for peripheral iridectomy are, however, slightly the better of the two in the three categories (A., B.), C., and D.

It is not possible to compare these figures with Marshall's except to state that the figures of groups A. and B. are as good as his with the addition of 6/18. But as from these operations some of the doubtful eyes are probably omitted, it hardly seems a sound comparison. He, too, pointed out that in his series the figures for extraction without iridectomy were appreciably better than those for the combined operation although the risk of prolapse and subsequent damage was so much greater.

PROLAPSE OF IRIS

Total.	With complete Iridectomy.	With peripheral Iridectomy.	Without Iridectomy.
163	42	50	71
6.88 %	4.52 %	5.65 %	12.8 %

VISUAL RESULTS AFTER PROLAPSE.

	A	B	C	D	E	No record
	33	68	29	18	7	6 (2 died)
Percentage ...	20.2	41.7	17.8	11	4.3	
	61.9		28.8			

Examination of these figures is of some interest. As is to be expected the percentage of prolapses in simple extractions is considerably higher than where iridectomy has been done. But the figures for iridectomy are high so that the total percentage is more than twice that recorded in Marshall's series where the simple extractions show 13.86 per cent., but the percentage after the combined operation is only 0.87. It might be thought that the small peripheral iridectomy is only a partial safeguard, but the figures in this operation are but little higher than those for complete iridectomy which are themselves so much higher than in Marshall's series.

It is hard to find any definite reason for the increased frequency of this accident. It may be that the extraction of immature cataract, so much more freely done now, increases the amount of soft lens matter left in the eye and this, on swelling, makes the risk of prolapse greater.

But if the frequency of prolapse is greater its effects on the final result do not seem as bad as has been held to be the case. Where there is a wide prolapse which is excised at once, the majority of results differ in no way from the normal. But a prolapsed pillar or a late prolapse undoubtedly leads to infection. Taking the results of the table as a whole it is clear that risk of suppuration and infection is only slightly greater, and that the added danger of a second operation is not so great as to lower very appreciably the final visual result.

It may only be coincidence that two of the deaths occurred after prolapse of the iris. But it must be true that a second operation, either with general anaesthesia or associated with pain under local anaesthesia, adds to the risk of heart failure or pneumonia in an elderly patient.

Vitreous loss

Total recorded cases	100—4.2 per cent.		
Scoop extractions	30		
Complicated cataract including high myopia	18		
Apparently normal eyes ...	52	... Combined operation...	32
		Peripheral iridectomy	8
		Simple extraction ...	10
		Preliminary iridectomy	2

It cannot be said that the percentage of vitreous loss is high—Marshall's figure is 4.27, strikingly similar. It is perhaps a little unexpected to find that more than half were in apparently normal eyes, but the notes are too limited to be sure of this point or to glean any reasons. The striking fact is that the numbers in the combined operation are relatively so much greater than in other operations. This gives support to the idea that many of the eyes were not normal, or that the patient was a difficult subject. Probably the latter fact is the more important for it is hard to see why vitreous should be more often lost under normal conditions where an iridectomy has cleared the way for the lens than where the intact iris would supposedly demand greater pressure and more manipulations in the delivery of a lens. Marshall found the same fact in his series although the number of simple extractions was so much smaller. He suggested that such a result was entirely due to the fact that where the simple operation was done the eye was a "picked case" and a morbid state of vitreous or ill-behaved patient unlikely. I am not sure that so much reliance can be placed as before on such factors as in many cases lens delivery through an intact pupil is an absolute routine unless there is a very definite contra-indication. But even if this is the case it means that the obviously doubtful eye is left for the combined operation, and in such an eye vitreous loss may be more readily expected.

PERCENTAGE OF VISUAL RESULTS AFTER VITREOUS LOSS

A	... ...	3 per cent.
B	... ...	24 „ „
C	... ...	22 „ „
D	... ...	25 „ „
E	... ...	17 „ „
No record	... ...	9 „ „

It is obvious that these are very much lower than the normal. Only 49 per cent. are 6/60 or better, and 17 per cent. have no perception of light or come to excision. In the face of such results it is impossible to regard the accident as of no great importance although its frequency and poor final result are so much influenced by the existence of an unhealthy state in the eye or patient prior to operation.

Marshall's figures are very much better than those given here. Forty-eight per cent. are 6/18 or better, and 73 per cent. are 6/60 or better. He makes no analysis of the cases, merely stating that many were of unhealthy type, and it is possible that more unhealthy eyes are now operated on in the hopes of some, if not great, improvement as a final result, than was the case in the years he reviewed.

Sympathetic ophthalmitis

Only four cases are recorded where this tragic event followed cataract extractions or needling. Marshall showed eight in his series.

Of the four, in one case both eyes were excised, in another one eye excised, and the sympathizing eye had perception of light vision. In the third both were saved with perception of light vision, in the fourth the inflammation was so slight in the exciting eye that the end result was 6/6 vision, whereas the sympathizing eye was excised owing to its destruction by the severity of the inflammation. This is a somewhat striking result. Little heed was paid to a mild attack of cyclitis in the exciting eye which quietened at once. But the patient returned in three months with that eye still quiet and the sympathizing eye in a hopeless state.

Tension raised after extraction and needling

It is hard to get accurate figures of this. In quite a number a temporary + tension is noted on one or two occasions and then no more, with a good visual result. But in 14 cases there was sufficient + tension to lower the visual acuity below 6/60, and in four cases excision was the only treatment that would relieve the symptoms.

After-cataract needling

There are 1,479 needling operations recorded subsequent to the extractions of this series, giving a percentage of 62.4. No case of suppuration occurred, though five cases of chronic infection leading to excision are recorded. Others are noted with some degree of infection, but it is not easy to differentiate either these or the more serious ones from most extraction infections. In some

there has been definite inflammation lit up by needling; in others infection is only noted first after the needling. The same holds for raised tension which has been considered above.

Marshall showed only 26.49 per cent. of needlings—a very much smaller figure. It appears necessary to give a little explanation as to why, with so much smaller a number of needlings, his results in the main are very similar to those in this series. In both series about 76 per cent. show 6/18 or better, but if this be subdivided it will be seen that in the higher groups there is a marked difference. I have collated his figures as accurately as possible.

Marshall.	6/6+, 22.7 per cent.
	6/12+, 35.4 „ „
	6/18+, 18 per cent. approximately.
This series	6/6+, 27.18 per cent.
	6/12+, 41.53 „ „
	6/18+, 7.4 per cent. approximately.

The very much greater frequency with which needling is performed now must account for the much better results in the subdivision of the higher grades of visual acuity after extraction. Needling is now so much less frequently followed by any bad results that it is more and more lightly undertaken, even to a point of needling every eye after extraction—almost as a "prophylactic" against the development of a membrane dense enough to obstruct vision. At the same time I would suggest that there is a greater need for needling now. When a hard mature lens was extracted any membrane left was likely to be so thin in many cases that 6/18 or 6/12, or even better vision resulted. Now that extraction is undertaken much earlier, in many cases, the chance of leaving soft lens matter, in spite of careful toilet or irrigation, is increased. The risk of infection is probably no greater, but the resulting after-cataract is often such as to give visual acuity well below 6/18. On needling, this is of course readily cleared from the pupil, with resulting good vision. These factors, I think, probably explain the very much larger percentage of needling operations in this series.

As Moorfields Research Scholar I have had full access to the notes of the patients, and I wish to thank the surgical staff at Moorfields for permission to collect and publish the facts in this paper.

REFERENCES

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Greeves.—*Trans. Ophthal. Soc. U.K.*, Vol. XLIII, p. 223.

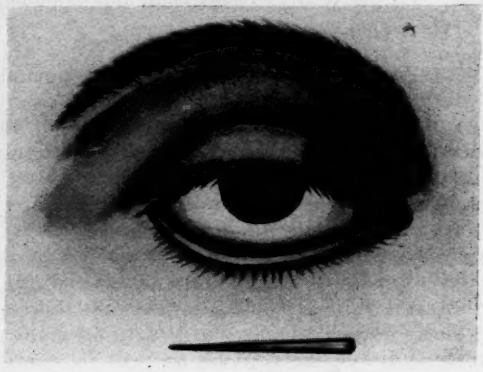
EXTRACTION OF THORN FROM THE ORBITAL CAVITY

BY

C. N. SHROFF

BOMBAY

A MAN, a farmer by occupation, consulted me in my clinic on September 7, 1927. He said that while chopping a branch of a date-palm tree it suddenly struck against his face, and he felt that a thorn entered his upper lid. Subsequently a tumour of the size of a small nut was noticed on the inner side of the right upper lid.



He felt pain off and on in the upper part of the orbital cavity, and he was sure that the thorn had remained inside.

When he consulted me after ten days, a small tumour of the size of a berry, of fibrous consistency, was noticed on the inner side of the lid.

On examination it was found that the pupil was active, and no changes were seen in the fundus. Tension was normal, and there was no limitation of movement. The only thing that he complained of was that he felt pain on movements of the eyeball.

On incising the skin over the tumour, a fibrous capsule was noticed, and on opening the capsule a thorn suddenly came out. There was very little haemorrhage. The thorn was about an inch in length, and fairly stiff. The whole thorn was encapsuled, and the eyeball was not affected.

The photograph of the tumour on the eyelid and the actual size of the thorn are herewith attached.

ANNOTATIONS

Ophthalmic Miracles

The eye has always lent itself to superstition, and blindness has ever been a favourite condition for miraculous healing. The case of Tobit in the Apocrypha is well known and forms the subject of an entertaining essay by Sir John Bland Sutton in one of his published volumes. Besides this, blindness and restoration of sight are of frequent occurrence in the Bible. Apart from spiritual blindness and that judicially inflicted, we get the example of the blindness inflicted on the men of Sodom, in Genesis, XIX, 11, and that inflicted on the Syrian army in 2 Kings VI, 18. But the best known examples are to be found in the New Testament, of Saul of Tarsus and of Elymas at Paphos in the Acts; while the four Evangelists together contain no fewer than seven miracles of the restoration of sight by Our Lord. That described by St. Mark in chapter VIII, verses 22-26, contains that odd statement of the afflicted that he saw men as trees walking.

In early English history the Venerable Bede, in chapter 18 of his *Ecclesiastical History,* gives among other miracles the following worked by St. Germanus: "A certain man who had the quality of a tribune came forward with his wife, and presented his blind daughter, ten years of age, for the priests to cure. They ordered her to be set before their adversaries, who being convinced by guilt of conscience, joined their entreaties to those of the child's parents, and besought the priests that she might be cured. The priests, therefore, perceiving their adversaries to yield, made a short prayer, and then Germanus, full of the Holy Ghost, invoked the Trinity, and taking into his hands a casket with relics of the saints, which hung about his neck, applied it to the girl's eyes, which were immediately delivered from darkness and filled with the light of truth."

The *Life of St. William of Norwich* fairly bristles with miracles of this kind, sandwiched in between those of the cure of madness, epilepsy, deafness, fluxes, and dropsy. Apart from the records of miracles, this book is interesting as detailing the starting point, in this country at any rate, of the history of the myth of Jewish ritual murders. It was published by the Cambridge University Press in 1896, the editors being Canon Jessop of Norwich and Dr. M. R. James, now Provost of Eton.

The most remarkable ophthalmic miracle that we have met with in the course of a good deal of miscellaneous desultory reading is the one recorded by Giraldus Cambrensis in his

Itinerary of Archbishop Baldwin through Wales in 1188. It concerns St. Kenelm, son of Kenulf, King of Mercia, and his sister, Quindreda.

"What miraculous power hath not in our days been displayed by the psalter of Quindreda, sister of St. Kenelm, by whose instigation he was killed? On the vigil of the Saint, when according to custom great multitudes of women resorted to the feast at Winchelcumbe (Winchcombe), the under butler of that convent had carnal knowledge of one of them within the precincts of the monastery. This same man on the following day had the audacity to carry the psalter in the procession of the relics of the saints; and on his return to the choir, after the solemnity, the psalter stuck to his hands. Astonished and greatly confounded, and at length calling to mind his crime on the preceding day, he made confession, and underwent penance; and being assisted by the prayers of the brotherhood, and having shown signs of sincere contrition, he was at length liberated from the miraculous bond. That book was held in great veneration, because when the body of St. Kenelm was carried forth, and the multitude cried out: 'He is the martyr of God; truly he is the martyr of God'; Quindreda, conscious and guilty of the murder of her brother, answered, 'He is as truly the martyr of God, as it is true that my eyes be on that psalter'; for as she was reading the psalter, both her eyes were miraculously torn from her head, and fell on the book, where the marks of the blood yet remain."

This is, we think, the most remarkable case on record of double evulsion.

COUNCIL OF BRITISH OPHTHALMOLOGISTS

Medical Certificates of Blindness for Persons applying at Voluntary Hospitals

In the *Brit. Jl. of Ophthal.*, Sept., 1927, see p. 98, the Council of British Ophthalmologists published a statement drawn up by the Lady Almoner of Moorfields Eye Hospital on this subject.

The attention of the Council has since been drawn to certain points in that statement which have proved misleading, and, in response to further inquiries the Ministry of Health has supplied a declaration on the present position.

From the information contained in the last paragraph it appears that the voluntary agencies for the blind and the local authorities have power to remunerate an ophthalmic surgeon for providing a medical certificate of blindness.

The statement supplied by the Ministry of Health is as follows:

17th December, 1927.

In connection with arrangements for the welfare of the blind in England and Wales medical certificates of blindness may be required for the following purposes:

(1) To support a claim for a pension under the Blind Persons Act, 1920.

(2) To support an application in respect of a blind person by a local authority or voluntary agency for grant out of public funds under the Regulations, for grant for the Welfare of the Blind, or under the Education Act.

(3) To obtain evidence of blindness before the registration of a blind person.

(4) To support an application for assistance to a voluntary agency by a blind person in respect of whom no grant out of public funds is payable.

(1) A claimant for a pension under the Blind Persons Act must apply to the Local Pensions Committee and satisfy the Committee that he is "so blind as to be unable to perform any work for which eyesight is essential." The claim is usually supported by a medical certificate, though this is not a requirement, or by a certificate from an approved Voluntary Agency for the Blind to the effect that the claimant is known to them as a blind person. If the evidence is regarded by the Committee as unsatisfactory the claim is rejected, and it is then open to the claimant to appeal to the Minister. On the other hand, if the Committee allow the claim on evidence which is considered unsatisfactory by the Pensions Officer, he will appeal to the Minister of Health. If the Minister, in considering an appeal, either by the applicant or the Pensions Officer, deems the evidence of blindness submitted to be sufficient to establish the claim, the claim is allowed. If not, the case is referred by the Minister to the Local Regional Medical Officer for examination. If the case appears to be one of special difficulty it may be referred, with or without previous reference to the Regional Medical Officer, to an ophthalmic surgeon for examination and report, and a fee for this service is paid by the Exchequer.

The appeals are dealt with as expeditiously as possible and, should the claim be allowed, the pension of the successful claimant is paid as from the date of his application.

(2) Certificates are required by local authorities or voluntary agencies to substantiate a claim for an Exchequer grant in respect of a blind person under the Regulations governing grants for the Welfare of the Blind. For example, a grant of £20 per head is payable in respect of each approved worker in a workshop for the blind and for each approved home-worker, and grants are also payable in respect of blind persons in homes and hostels and of blind persons under training. The Minister of Health (or, in the case of blind persons under training, the Board of Education) requires to be satisfied as to the fact of blindness before paying grant, and it is for the authority or agency claiming the grant to furnish the necessary evidence.

(3) The schemes made under the Blind Persons Act, 1920, require each local authority to keep, or to arrange for a voluntary agency to keep on their behalf, a register of the blind in their area. These local authorities are the 62 County Councils, the 83 County Boroughs and the Common Council of the City of London. Before registering a person as blind the registering authority must establish the fact of blindness and a satisfactory medical certificate is required for this purpose.

(4) A voluntary agency may require a certificate for purposes other than claiming an Exchequer grant or registering a person as blind.

I am to add that local authorities and voluntary agencies can incur reasonable expenses in obtaining such medical certificates of blindness as are necessary for their work under headings (2), (3), and (4) above. With regard to the Exchequer grants for the Welfare of the Blind, while they are assessed and distributed on a *per capita* basis for specific services, the amounts, when received by the voluntary agencies, may be applied for any legitimate purpose of the agencies. The contributions made by local authorities to the funds of voluntary agencies may also be so applied except in the case of any contributions made for specific purposes.

ABSTRACTS

I.—TRACHOMA

(1) **Noguchi, Hideyo (New York).—Experimental production of a trachoma-like condition in monkeys.** *Jl. Amer. Med. Assoc.*, September 3, 1927.

(1) This experimental work on trachoma has already been referred to in the journal (*Brit. Jl. of Ophthal.*, Vol. XI, p. 367). It was begun in May, 1926, when at the request of Dr. F. I. Proctor an expedition was made by **Noguchi** to New Mexico where a number of pupils in the government school for Indians were to receive surgical treatment. For the purposes of the experimental investigation several previously untreated typical cases of trachoma were selected. The five cases minutely studied were of from two to four years' standing and all the patients showed some scarring at the time of operation. They were examined a year later and the lesions were found to be still active.

The trachoma of the Indians is interesting in view of its high incidence, as shown by recent official surveys, and the probability that it has been endemic among them for a very long time. It seemed not impossible that it might not be exactly the same disease as that known as trachoma elsewhere.

Attempts were made (1) to transmit the disease to Macacus rhesus and anthropoid apes by direct inoculation of the pathological

material; and (2) to isolate as many varieties of micro-organisms as possible from the excised tarsal tissues.

Direct inoculation experiments

Small pieces of the conjunctival tissue from each case were ground in a sterile mortar with saline solution, and the suspension was applied to the scarified surface of the conjunctiva and also injected into the retrotarsal conjunctival tissue of four rhesus monkeys, a chimpanzee, and an orang-utan. The rhesus monkeys were inoculated on the spot; the chimpanzee and the orang-utan received material which had been brought to New York under conditions of refrigeration. One eye was inoculated in each instance, the other being regarded as the control. None of the animals directly inoculated presented any lesions within a period of four months' observation.

Cultivation experiments

As was to be expected, strains of bacillus xerosis and staphylococcus albus were usually present. Two types of minute Gram-negative bacilli were also found in practically all the cases, one motile and chromogenous, the other apparently non-motile. The former grew well on ordinary agar slants, the other only on certain special types of medium, a semi-solid medium containing fresh animal serum and haemoglobin (the leptospira medium), or on blood agar slants containing certain carbohydrates. Another type of organism usually obtained in culture was a large, pleomorphic sarcina which grows well on ordinary media and produces mucin and a light brown pigment.

Effects of inoculation of bacteria cultivated

The effect of every organism found was tested on the conjunctiva of rabbits and monkeys in pure culture by subconjunctival injection and by scarification of the scarified surface. Usually only one eye of each animal was inoculated. Several animals were used in testing each group of strains.

The staphylococcus caused an acute purulent conjunctivitis in rabbits and monkeys, which completely disappeared within about ten days, without leaving traces on the conjunctiva. The sarcinoids and the chromogenic bacterium induced a moderate mucopurulent conjunctivitis which lasted about a week. No follicles or scar formation resulted. The inoculation of bacillus xerosis did not have any perceptible effect. In short none of the strains growing on ordinary culture media produced any pathological change which resembled, even remotely the human disease with which it was associated.

The monkeys inoculated with the Gram-negative bacillus which grew only on special media showed nothing abnormal until

from two to four weeks after inoculation, when they developed a granular conjunctivitis which slowly progressed within from two to five months until the inoculated conjunctiva had an appearance strikingly like that of the human trachomatous conjunctiva in the early stages of the disease. The follicular lesions had gradually extended over the tarsal region, and the tarsus had become distinctly thickened. In one animal definite scar formation had taken place within about eight months after inoculation, and when the animal died from pulmonary tuberculosis the histological changes in the lid were found to correspond in a striking way with those which are regarded as typical of trachoma. In this animal the condition had remained confined to the inoculated eye until it had been experimentally transmitted to the other side, but in most of the others the uninoculated eye soon became involved. The rabbit conjunctiva was not affected by the inoculation of this organism.

Transfer of the disease in series

The lesions induced in the conjunctiva of the rhesus by the inoculation of culture were successfully transmitted to other rhesus monkeys in series, and the lesions in the passage animals were altogether similar to those in the animals originally inoculated. From a second passage rhesus monkey transfer was made to the chimpanzee, which developed the characteristic granular conjunctivitis. At the present time (May, 1927, five months after inoculation) the lesions extend over nearly half the tarsal region. The uninoculated eye remained unaffected for some time, but at the end of four months it developed granulations which are slowly advancing. From the chimpanzee the condition was successfully transferred again into rhesus monkeys (third passage).

Some of the experimental animals have been shown recently to a number of ophthalmologists, Knapp, de Schweinitz, Wilmer, Verhoeff, and others. The consensus of opinion is that the lesions closely resemble those of trachoma in man.

Histological changes in the inoculated conjunctiva

Before describing the changes seen in the conjunctivae of the experimental animals the author outlines those found in the American Indian trachoma. The essential features of the lesions in the human disease are: (1) diffuse infiltration of lymphocytes mingled with plasma cells, extending the entire length of the subepithelial layer; (2) the presence of fairly well defined follicles, consisting of layers of lymphocytes, enclosing a mass of large round or polyhedral epithelioid cells with paler staining cytoplasm and nuclei; (3) ill-defined foci of mingled lymphocytes and large epithelioid cells; (4) the presence of Leber cells within the follicle

and elsewhere; (5) the presence of fine connective tissue fibrils surrounding or penetrating the infiltrated or follicular areas; and (6) the proliferation of the conjunctival epithelium, which in some cases shows several layers of flattened cells, and in others is thinned out to a single layer or even ruptured by protruding follicles. In older lesions the infiltrations and follicles have given place to increased numbers of connective tissue fibres, which bind the epidermized conjunctival epithelium to the often deformed tarsus. A few polynuclear leucocytes may be found in the tumid epithelial layer, but their presence is not usual.

In the monkey lesions the changes are essentially the same. There is the subepithelial lymphocytic infiltration along the narrow space between the epithelium and the tarsus; the large masses of lymphocytes and epithelioid mononuclear cells which constitute the so-called follicles that protrude from the region of the fornices; the fine connective tissue fibres and Leber cells in the infiltrated area as well as within the follicles; the hyperplasia or disruption of the conjunctival epithelium over the follicles, and finally, the advanced sclerotic changes of the conjunctiva, which occurred in one monkey. As to the type of cellular elements that are concerned in the experimental lesions one can hardly distinguish them from those encountered in the human tissues. The characteristic papillary hyperplasia of the human tarsal region is not exactly reproduced in monkeys, probably owing to the lack of the loose subepithelial layer with papillary or undulating folds. However, a true papillary hyperplasia has been observed in the experimental lesions whenever there was loose subepithelial connective tissue, as in the fornices of the upper lid or in the conjunctiva of the lower lid.

Characteristics of the micro-organism

The micro-organism as it appears after adaptation to artificial cultivation has a superficial morphological resemblance to the xerosis bacillus and other diphtheroids, but it differs from them in being Gram-negative, decidedly smaller, and motile under certain cultural conditions.

The initial cultures were obtained only on leptospira medium and on blood agar plates containing certain carbohydrates, and it remains to be determined whether growth will occur on other culture media. The colonies on blood agar plates are moist, shining, somewhat elevated, rather minute, and translucent, with a trace of yellowish gray tint. The optimum temperature for growth is 30 degrees C. In a young culture grown at this temperature, the organisms are fairly uniform in size, measuring about 0.8 to 1.2 microns in length by from 0.2 to 0.3 microns in width. The

ends are rather pointed, and diploid formation is common. On leptospira medium the organism is able to grow at 37 as well as at 30 degrees C. No motility is observed on this medium. The growth is homogeneous, never granular.

Comments

It is to be noted that direct inoculation with the human materials failed while cultures induced the granular conjunctivitis. The reason for this is probably the high natural resistance of the monkeys which can only be broken down by the overwhelming numbers of micro-organisms contained in a culture.

The evidence in favour of the relation of the micro-organism in question to the human disease with which it is associated is found in (1) its association with four of the five cases so far carefully studied; (2) its ability to produce a chronic granular conjunctivitis which closely resembles in its clinical and histopathological aspects the human disease, and also the experimental disease described by previous investigators who have directly transmitted trachoma to monkeys (Hess and Römer, Morax, Axenfeld, Greef, Nicolle, and others); (3) the transmissibility in series of the experimental conjunctival disease; (4) the recovery of the microbe from the experimental lesions, even in the second and third passages in monkeys; and (5) the total inability of any of the other micro-organisms isolated from the same cases to induce follicular lesions of the conjunctiva of the monkey.

Whether or not the parasite is related to forms of trachoma other than that occurring in American Indians remains, of course, to be determined by isolation of the micro-organism from cases in other localities, and possibly also by serological examinations.

A. F. MACCALLAN.

(2) **Posey (Philadelphia).—Trachoma among the Indians of the South West.** *Jl. of Amer. Med. Assoc.*, May 21, 1927.

(2) The trachoma question among the Indians of Arizona and New Mexico is so important that the Secretary of the Interior appointed a Committee of Ophthalmologists, consisting of **Posey,** Knapp, Wilder, and Proctor, with whom he might confer as occasion demanded. Visits have been made by members of the Committee to Indian Territory, which was already familiar to Proctor, to note the amount of infection, and the means adopted for dealing with the disease.

They found trachoma everywhere, children as well as adults exhibiting all stages of the disease, which in no way differed from the manifestations observed elsewhere. Some years ago the government made the education of Indian children obligatory,

and when attendance at some near-by day school was impossible, enforced the rule requiring residence in one of its boarding schools. All these institutions are housed in large buildings provided with spacious playgrounds. The dormitories are roomy and airy, and each pupil has a separate bed on which the linen is clean. The children wash under running water and dry their hands and faces on small individual towels. The pupils appear well nourished, active and happy. Many had trachoma and from the investigations of Posey and Proctor, it was apparent that notwithstanding the excellent sanitation of the schools, the disease is propagated there and that some of the pupils who enter in the autumn with unaffected eyes return to their homes in the summer with trachoma. It is Posey's opinion that the compulsory education programme for children, admirable and necessary as it is, has been the chief cause of the increase of trachoma among the Indians in recent years.

Recommendation was made to the authorities that trachomatous children in the schools should be separated from those unaffected with the disease, and that their eyes be given continuous treatment, until they can be pronounced cured, and no longer capable of infecting the eyes of others. Already one trachoma hospital school has been established in Arizona. There are a number of medical officers belonging to the Indian Service treating trachoma, but there is an insufficient number of hospitals where diseases of the eye can be efficiently treated.

In company with Proctor, Noguchi visited New Mexico and made inoculation experiments of trachoma material on the conjunctiva of chimpanzees. Follicles developed followed by scarring. The organism was recovered from the follicles and cultured, when it again produced the same results on inoculation. The organism is a Gram-negative, aerobic bacillus, possessed of motility which may last for 35 days in the special medium used for culture. Blood serum from trachoma cases produces marked agglutination of the cultured bacilli, which is not the case with serum from non-trachomatous cases. All Noguchi's bacteriological and experimental work has been verified by Verhoeff in Noguchi's laboratory at the Rockefeller Institute. Nevertheless it is to be noted that Noguchi makes no claim to the discovery of a specific trachoma organism. He states that he has discovered a certain organism and has produced conditions which have the appearance of trachoma, and his investigations are still proceeding. The reviewer is indebted to Dr. Proctor for this information on Noguchi's work which was presented at the recent annual session of the American Medical Association, but is not yet available in print (compare the foregoing abstract).

A. F. MACCALLAN.

(3) **Salvati, (Italian Hospital, Alexandria). — Serotherapy in trachoma. (La sérothérapie dans le trachome.)** *Ann. d'Ocul.*, Vol. CLXIII, p. 613, 1926.

(3) **Salvati** claims to have removed all clinical traces of active trachoma in from one to two months in cases subject to the disease in the granulomatous stage. The therapeutic agent employed is the serum, after inactivation, of a patient suffering from trachoma. This serum is injected in 0.25 c.cm. doses beneath the conjunctiva on alternate days. Four patients, aged from eighteen to forty years, were treated in this manner. Microphotographs show sections of the affected conjunctiva before, and during or after treatment. In order to try to confirm the efficacy of this serum, some patients with blind eyes and some who had undergone enucleation, suffered inoculation experiments with secretion from an active case of trachoma. Three patients had subconjunctival injections of the serum previous to the application of the infective material. These patients, kept under observation for different periods up to a month, revealed no reaction whatever. Control cases, to whose conjunctiva material from the same case of active trachoma was applied, developed conjunctival hyperaemia and secretion by the following day, and photophobia and lacrymation, and in one week yellowish follicles in the upper fornix. Histological examination revealed marked lymphocyte infiltration of the tarsal conjunctiva and small subepithelial granulations. Microphotographs are reproduced.

HUMPHREY NEAME.

(4) **Stange, H. (Berlin). — Findings regarding intravenous injection of copper in trachoma. (Erfährungen über intravenöse Kupferbehandlung bei Trachom.)** *Arch.f.Augenheilk.*, Vol. XCVIII, May, 1927.

(4) **Stange** in the endeavour to ascertain a safe dose to administer experimented on the guinea-pig and found that on an average more than 1 c.cm. of the injection material proved lethal to guinea-pigs weighing about 2,350 grms. A sterile 4 per cent. aqueous solution of copper-ammonium-sulphate—as originally employed by Meyerhoff—was used. Seven cases of undoubted trachoma with marked signs and symptoms were chosen for treatment. Beginning with a dose of 0.5 c.cm. the injection was repeated daily or every second or third day according to the needs of the case. The highest dose given in some cases individually amounted to 5 c.cm. per day. No untoward occurrence was noted in over 100 injections. But in aspirating blood from the vein of the patient into the injecting syringe numerous small coagula formed.

The findings were: (1) the medication works best against the subjective symptoms of trachoma while producing considerable objective improvement in some cases; (2) but as the medicament produces coagula in the blood, there is the danger of pulmonary embolism with all its possible consequences.

On account of this danger in spite of the satisfactory clinical results, this injection was given up at the Berlin Charité.

(One wonders why mixing the copper-ammonium-sulphate solution with a trace of sodium citrate to avoid the formation of coagula was not thought of. Would the mixture give rise to detrimental chemical combinations? If not, it would be a way out of the difficulty.—D.V.G.)

D. V. GIRI.

(5) **Raïes, Georges (Paris).—The prophylaxis and treatment of trachoma. (Prophylaxie et traitement du trachome.)** *La Clin. Ophtal.*, September, 1926.

(5) This article by **Raïes** is a clear and succinctly detailed account of the treatment of trachoma, an enormous subject boiled down to some fourteen pages of the journal. It does not lend itself to abstraction on account of condensation, but may well be referred to by those in search of methods. At the same time the reviewer feels that he must issue a caution, namely, not to trust entirely in the transcription of prescriptions printed in French, and possibly also other foreign, journals for the reason that misprints are so extremely common, and may affect a prescription just as easily as the general text. An example will be found on page 509 where an English reader could not possibly determine the quantity of a drug intended to be used.

ERNEST THOMSON.

(6) **Abadie (Paris).—The treatment of trachoma. (Considerations sur le traitement du trachome.)** *Rev. Internat. du Trachome*, April, 1927.

(6) Until reading the article above mentioned on the treatment of trachoma by inoculation of gonorrhoeal pus based on a case treated by **Abadie** forty-five years ago, the reviewer imagined that this nightmare of a treatment had been dispelled by the morning light of knowledge about the year the case was treated. The author mentions no other case, and is to be congratulated that further opportunities have not occurred. He has recommended an Egyptian doctor who has been working in Paris to try the treatment on his return to Egypt. It is to be hoped that before doing so this doctor will consult with his Egyptian confrères who have

little to learn from European oculists in the treatment of trachoma and its very frequent complication, gonococcal conjunctivitis.

A. F. MACCALLAN.

(7) **Zachert, M. (Cracow).—Trachoma in children. (Le trachome chez les enfants.)** *Rev. gén. d'Ophtal.*, July, 1926.

(7) The article by **Zachert,** who seems to have had a very large experience of trachoma in children, while probably of great interest to those who habitually deal with this disease is hardly suitable for abstraction. But the author in the course of what he has to say describes the instrument which he employs for the complete exposure of the upper cul-de-sac. We all know how difficult it is, and how unpleasant for the patient, to expose this region in its entirety. Various instruments have been devised for the purpose but the one here described seems to be of an unusually efficient type giving an immense amount of leverage and which, one thinks, might in the hands of an unskilled operator be too powerful. It consists of a plaque suitably shaped for the upper lid placed at right angles to a long specially shaped handle. The plaque is applied to the outer surface of the eyelid, which is then everted over it, while the lever-like handle lies parallel with the patient's cheek and is of such length that the operator's finger and thumb are holding it about the level of the ramus of the lower jaw.

When the lid has been everted over the plaque and the eyelashes are pointing upwards the handle of the instrument is raised until it is about parallel with the patient's forehead, a curve in the line of the handle accommodating the upper margin of the orbit. The result of this procedure is to make a second fold in the eyelid so that the eyelashes are now pointing downwards with the tarsal conjunctiva applied to the skin surface of the brow. The reviewer hopes that his description is intelligible but in the original the whole procedure is made perfectly obvious by drawings.

ERNEST THOMSON.

(8) **Zavalia.—Trachoma in the district of Cordoba. (El tracoma en la provincia de Cordoba.)** *Arch. de Oftal. de Buenos Aires*, February, 1927.

(8) **Zavalia** has a long article on the diffusion of trachoma in the district of Cordoba. The numerous articles which have appeared in the South American ophthalmic journals on trachoma are an interesting sign of the attention which is now being paid to this dreadful scourge of humanity in some climates. However, the preparation of statistics on the incidence of the disease

must take immense labour which would be more usefully employed in really getting started a comprehensive scheme for trachoma treatment at any rate in the larger towns. So long as ophthalmic surgeons in trachomatous countries are satisfied when they have prepared statistics and made recommendations for treatment or prophylaxis it is clear that little will be done. However, this is not always the case, for the distinguished ophthalmic surgeon Professor Demaria of Buenos Aires has recently visited Egypt and seen the organization erected there for the treatment of the disease, and will no doubt bring his influence to bear on the Government to set on foot some scheme suited to the needs of the country.

A. F. MACCALLAN.

(9) **Barbieri.—The prophylaxis of trachoma in the Argentine. (El tracoma y su profilaxis en la Argentina.)** ***Arch. de Oftal. de Buenos Aires,*** January, 1927.

(9) Barbieri has found in some of the provinces of Argentina that the percentage of pupils in the schools who show the signs of trachoma varies from 2 per cent. to 56 per cent. He wishes to make notification of cases of trachoma obligatory, as in France at the present time, and to make compulsory the treatment of all cases.

Dusseldorp states that at Santiago del Estero 54 per cent. of the patients who presented themselves at the general dispensary showed signs of trachoma.

A. F. MACCALLAN.

(10) **Krystin (Bratislava). — The fight against trachoma in Slovakia. (La lutte contre le trachome en Slovaquie.)** ***Rev. Internat. du Trachome,*** April, 1927.

(10) Slovakia, now a part of the Republic of Czecho-Slovakia, was formerly a province of the Hapsburg monarchy, and in pre-war times had very satisfactory regulations drawn up by de Grosz to combat the trachoma scourge, which were abandoned during the war. A recent census of trachoma reveals that 40 per cent. of the inhabitants of some districts are infected.

Under such conditions it was soon evident that if treatment was to be given to the poorer classes outside the working hours, its application by doctors alone would not suffice, on account of the length of time necessary for the work of treating such large numbers of the population, which would be incompatible with their other duties. The utilization of unqualified assistants being therefore necessary, an attempt was made to get treatment carried out by the teachers in the schools, but without success. It was,

therefore, decided to employ nuns for the application of simple remedies; this has given good results. The districts especially affected have been divided into sectors in each of which an anti-trachoma dispensary has been established, with auxiliary dispensaries in the sub-districts. A secretary of health is appointed to each principal section who is as far as possible recruited from those who have done a course at the Higher Social Help School, and have had some practical experience. The application of remedies is entrusted to these officers under the direction and periodical control of the inspecting medical officer.

The secretaries of health, with the help of the public services and of all medical men, keep a register of those infected in such a way that each fresh case is notified and registered, as well as every change of address.

There are actually in Slovakia 81 anti-trachoma dispensaries which are carried on by 27 secretaries of health and 16 doctors. This organization is in constant process of expansion, and is intended to embrace the whole country in the course of time.

Measures to restrain the further diffusion of trachoma consist of health instruction given in the mother-tongue, both in the schools and in public resorts.

The authorities of Slovakia are to be congratulated on their appreciation of the importance of a continuous struggle against trachoma, as well as on the selection of their anti-trachoma measures. Krystin has given a very clear and modest description of the efforts which are being made.

A. F. MACCALLAN.

(11) **Talbot.—Trachoma in the French Cameroons. (Trachome dans le Cameroun sous mandat français.)** *Rev. Internat. du Trachome*, April, 1927.

(11) Talbot has done some excellent work in examining the incidence of trachoma in the French Cameroons between the equator and Lake Chad, which are separated by about 15 degrees of latitude. While in the southern region there is no trachoma, in the north there is about 8 per cent. in the government schools. He notes that the papillary form of trachoma (trachoma II*b* stage), is much more frequent than in France or Indo-China. He states that trachoma has invaded the territory from Northern Africa accompanying the Moslem conquest. He recommends that the Haussa porters who monopolise commercial transport both from the infected north and in the territory itself, should be examined and given a sanitary passport if free from trachoma, while if infected they should not be employed.

A. F. MACCALLAN.

BOOK NOTICES

Die Mikroskopie des lebenden Auges an der Gullstrandschen Spalt-lampe mit Atlas typischer Befunde. Von Privatdozent Dr. A. MEESMANN. Three illustrations in the text and 210 coloured pictures. Berlin and Vienna: Urban and Schwarzenberg. 1927. Price 50 marks.

This is a text-book and Atlas which combines the advantages of both, in that the first 150 pages form the text-book followed by the Atlas, the references to which are found in the margins of the first half of the book.

In arranging the text-book portion Dr. Meesmann has followed the plan familiar to us in Dr. Koby's book. After a few pages introducing the subject there follows a chapter describing the apparatus, with special stress laid upon the Zeiss model of lamp, and the Czapski microscope. Anyone unfamiliar with the use and setting up of the slit-lamp should find no difficulty in either direction after a careful perusal of these pages. The third section describes in detail the various applications of the slit-lamp. In the fourth section the portions of the eye available for examination are described in a systematic fashion: first the methods of examination that are available for the particular structure, then the normal appearances, congenital anomalies, senile changes and so on. The result is that the book is an epitomé of the literature of slit-lamp microscopy brought down to the spring of 1927.

The two last chapters of the fourth section deal with the angle of the anterior chamber and the fundus. There is very little literature on the angle of the anterior chamber, and the method of examination is comparatively new. Here all that has been published is abstracted, and it is convenient to have all the information available in a book of this kind. As to the application of the slit-lamp to the examination of the fundus, it seems significant that the description of various conditions observed, and the abstracted literature occupies less than one and a half pages and the eight illustrations appended do not show any features that might not have been observed with an ophthalmoscope. One important feature of the book is the full list of literature and a detailed index.

In the Atlas that forms the second half of the book the pictures are in colour and very well reproduced. Each of the 210 illustrations has a short legend, and there is a reference in the margin to the page in the text-book on which the condition depicted is described. Altogether this is a handsome and attractive volume written in a judicious manner and with great clearness. The care and industry displayed in epitomizing the literature reflects great credit

upon the author, and we would express the hope that it may soon be available for the English reader, especially as the only comparable volume, namely, Vogt's Atlas, is now out of print.

Revista Oto-Neuro-Oftalmologica y de Cirurgia Neurologica. Buenos Aires. July and August, 1927.

A new Spanish ophthalmological journal has made its appearance at Buenos Aires named as above. The first two numbers are very well printed and illustrated. The directors are Dr. Lijo Pavia and Dr. Roque Orlando. There are other well-known names in the list of the Committee and Secretaries.

The first article in the first number, which is continued in the second, is by Pavia on the photography of the fundus. He uses the Dimmer method with the Gullstrand stationary ophthalmoscope, constructed by Zeiss, and he explains the use of the instrument and the adaptability of the ocular fundus photographs for clinical records.

Trachoma. Thesis for the National University of Buenos Aires. By MARCELLO DUSSELDORP. Buenos Aires. 1927.

The author has published a book of 200 pages on trachoma, which exhibits him not merely as a careful student of the modern literature on trachoma, but also as a discriminating surgeon acquainted with all modern methods of treatment of the disease. He recognizes the importance of the division of the various phases of trachoma according to their evolution, MacCallan's stages of trachoma. He also lays stress on the necessity of using the slit-lamp in the diagnosis of doubtful cases of trachoma. There is no doubt that in cases in which the diagnosis of trachoma is suspected, but is not certain, no opinion should be given before a careful slit-lamp examination has been made.

CORRESPONDENCE

EXAMINATION OF THE FUNDUS BY RED-FREE LIGHT

To the Editor of THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—I am much obliged to the reviewer of "Recent Advances in Ophthalmology" by Mr. Duke-Elder for emphasizing that I first introduced the mercury vapour lamp for the examination of the eye (*Trans. Ophthal. Soc. U.K.*, 1903), and for alluding to the

fact that extensive trial was given to it at the time. I would like to point out also that the paper states that similar results can be obtained by using a Gifford's F. line screen in front of an arc lamp, showing that other forms of red-free light were tried. Although the paper is a brief one, it summarizes practically all the points which have been brought forward again recently which, although of interest, are of no great practical value.

Yours truly,

M. S. MAYOU.

NOTES

Death

WE regret to record the death on January 7 of Mr. LEON GASTER. He was the founder of the Illuminating Engineering Society, and he was responsible for creating an impartial platform for the discussion of all problems relating to illumination, natural and artificial. He deserved great credit for the breadth of his views, especially in recognizing the medical and hygienic aspect of illumination. He was largely responsible for convincing the Home Office of the advisability of forming a Departmental Committee on factory lighting, which proved a step towards the formation of a permanent committee, which is now in being as the Illumination Committee of the Department of Scientific and Industrial Research.

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Registration of Opticians

THE report of the Departmental Committee appointed last year to consider this subject has been issued, consisting of a majority and two minority sections. The majority report is to the effect that a State register of sight-testing opticians is not in itself a desirable policy. We hope to comment more at length in our next number.

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Royal London Ophthalmic Hospital Dinner

THE annual dinner of past and present students of Moorfields Hospital will be held at the Langham Hotel, on Wednesday, February 8 at 7.30 p.m. Sir Wilmot Herringham, K.C.M.G., C.B., in the chair. Tickets, 15s. (exclusive of wine), may be obtained from Sir William Lister, 24, Devonshire Place, W.1. A remittance with application will save great inconvenience.

Appointment

SIR E. FARQUHAR BUZZARD has been appointed Regius Professor of Medicine at the University of Oxford.

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Conference on Rheumatic Diseases

A CONFERENCE on Rheumatic Diseases is to be held at Bath on Thursday and Friday, May 10 and 11, 1928. Sir George Newman, Chief Medical Officer of the Ministry of Health, has kindly consented to act as President of the Conference. There will be three Sessions: (1) Social Aspects, presided over by Lord Dawson of Penn; (2) Causation, presided over by Sir Humphry Rolleston (Regius Professor of Physic, Cambridge); and (3) Treatment, presided over by Sir E. Farquhar Buzzard (Regius Professor of Medicine, Oxford). The local Hon. Medical Secretary is Dr. Vincent Coates, 10, Circus, Bath.

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Corrigendum

IN Dr. MacRae's paper on Webster's operation for entropion of the upper lid, page 30, paragraph 3, last line, for "will never fail" substitute "will never give a bad result."

FUTURE ARRANGEMENTS

1928

February 3.—North of England Ophthalmological Society at Newcastle-on-Tyne.

February 8.—Annual Dinner of the Royal London Ophthalmic Hospital at the Langham Hotel.

February 9.—Royal Society of Medicine, Joint Meeting of Sections of Ophthalmology and Neurology.

March 2.—North of England Ophthalmological Society (jointly with the Midland Ophthalmological Society) at Sheffield.

March 9.—Royal Society of Medicine, Section of Ophthalmology (Clinical Meeting).

March 30.—North of England Ophthalmological Society at Liverpool.

April 19-21.—Annual Congress, Ophthalmological Society of the United Kingdom at the Royal Society of Medicine.

May 11.—Royal Society of Medicine, Section of Ophthalmology.

June 8.—Royal Society of Medicine, Section of Ophthalmology (Annual).